

Solve for x

(a) $4^x = 18$

$$x = \frac{\log 18}{\log 4}$$

$$\approx 2.084$$

(e) $4x^2 - 3 = 2$

+3 +3

$$\frac{4x^2}{4} = \frac{5}{4}$$

$$x^2 = \frac{5}{4}$$

$$x = \pm \frac{\sqrt{5}}{2}$$

(b) $\log_9 36 = x$

$$9^x = 36$$

$$x = \frac{\log 36}{\log 9}$$

$$x \approx 1.630$$

(f) $x^2 - 3x + 2 = 0$

$$(x-2)(x-1)$$

$$x = 1, 2$$

(c) $\ln_e x = -3$

$$e^{-3} = x$$

$$\approx 0.049$$

(d) $\log_3 2x - 5 = \log_3 16$

$$\log_a x = \log_a y$$

then $x = y$

$$2x - 5 = 16$$

$$2x = 21$$

$$x = 10.50$$

(g) $x^2 - 7x + 6 = 0$

$$(x-6)(x-1)$$

$$x = 1, 6$$

There are 3 things you need to know

- $7^x = 47 \rightarrow \text{exponential form}$
- $\log_7 47 = x \rightarrow \text{logarithmic form}$
- $x = \frac{\log 47}{\log 7} \rightarrow \text{Answer for } x$

(58)

$$4[\ln z + \ln(z+5)] - 2\ln(z-5)$$

$$\downarrow \quad \downarrow$$

$$\ln(z(z+5))^4 - 2\ln(z-5)$$

$$\ln \left(\frac{(z^2+5z)^4}{(z-5)^2} \right)$$

(67)

$$\log_3 9 = x$$

$$3^x = 9$$

$$x = 2$$

(77)

$$2\ln e^4$$

$$2(4) = 8$$

$$2 \cdot 4 \ln e$$

$$2 \cdot 4 \cdot 1 = 8$$

$$(19) \ln(5e^6)$$

$$\ln 5 + \ln e^6$$

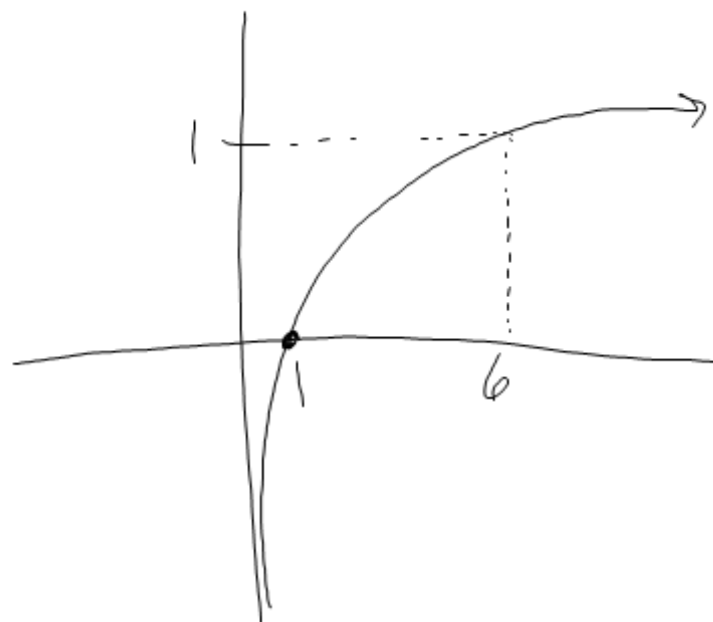
$$\cancel{6 \ln e}$$

$$6 \cdot 1 = 6$$

$$\ln 5 + 6$$

36 3.2

$$\log_6 x$$



Vert asympt. $\Rightarrow x=0$

$$x\text{-int} = 1$$

Domain
(0, ∞)

Sect. 3.4

examples # 1-4, 6-8, 11

$$e^{2x} - 3e^x + 2 = 0$$

$$x^2 - 3x + 2 = 0$$

$$(x-2)(x-1)$$

$$x = 1, 2$$

$$(e^x - 1)(e^x - 2)$$

$$e^x = 1$$

$$e^x = 2$$

$$\begin{aligned} x &= \ln 1 \\ x &= \ln 2 \end{aligned}$$

$$\ln(x-2) + \ln(2x-3) = 2 \ln x$$

$$\ln((x-2)(2x-3)) = \ln x^2$$

$$\ln(2x^2 - 7x + 6) = \ln x^2$$

$$\begin{aligned} 2x^2 - 7x + 6 &= x^2 \\ -x^2 & \end{aligned}$$

$$x^2 - 7x + 6 = 0$$

$$(x-6)(x-1)$$

$$x = \cancel{1}, 6$$

extraneous

$$x = 6$$

Sect. 3.4

7-19(odd), 25, 37, 39, 45, 47, 48, 49, 51, 55, 56, 57, 58